FARM CREDIT IN ONTARIO

WHERE TO GET IT AND HOW TO USE IT

"There is no magic about credit. It is a powerful agency for good in the hands of those who know how to use it. So is a buzz saw. They are about equally dangerous in the hands of those who do not understand them. Speaking broadly, there are probably almost as many farmers in this country who are suffering from too much as from too little credit. Many a farmer would be better off today if he had never had a chance to borrow money at all, or go into debt for the things which he bought. However, that is no reason why those farmers who do know how to use credit should not have it."

T.N. Carver

"Many do not realize the rapid expansion of capital demanded by the technological revolution going on in agriculture nor the consequences which face the farmer who does not 'keep up'. Adequate units become inadequate in half a generation if the family does not continue to add capital. Must farm families throughout their lifetime deny themselves comforts considered essential for urban families in order to amass a small or moderate fortune required to capitalize an efficient farm unit? Burdened with the load of acquiring the minimum of capital needed to start farming, what chance does the beginning farmer have to ever developing an adequate unit if capital requirements keep growing at a faster rate than he can save?

"One solution to these questions may lie in knowing how to use credit and how to get it extended on proper terms. Farmers use credit and will continue to do so, but the significance rests in how much they use, how they use it, and where they obtain it."

from
Fourth Edition
Agricultural Finance
by
William G. Murray
Aaron G. Nelson

INTRODUCTION

CREDIT: Its Importance and Sources
- H.L. Patterson -
Director, Farm Economics and Statistics Branch
Ontario Department of Agriculture and Food

The capital requirements per man in farming are about the highest of any industry in Canada.[1] We have a tradition of owner-operator farms in Ontario. This adds to the complication of financing our farms because we change owners and hence the source of financing at least once every generation. There are over three and a quarter billions of dollars tied up in Ontario commercial farms alone in farm real estate, livestock and equipment. Much more is required for feed supplies, operating, and personal living expenses. This is a staggering amount of refinance every generation. Also farm capital requirements are increasing at a rapid rate. Census data and farm management studies suggest that the average capital value per farm has almost doubled during the past 10 years.

A study of Ontario farms revealed that 74 percent were mortgaged at some time during the active lifetime (usually at time of purchase) of each operator. About 70 percent of these mortgages were held by private individuals. Even in transfers from father to son, over two-thirds of the transfers were accompanied by a registered mortgage.

There are no regularly collected public statistics showing the extent of farm mortgages in Ontario. Table 1, page 3 estimates the total amount of long term debt in Canada in 1964 to be in excess of $1,222 million.

However, mortgages no longer tell the complete farm credit story. Around 1931, real estate - the base for mortgage borrowing - represented about 75 percent of farm capital.[2] Then, mortgages provided most of the capital needed to acquire and finance a farm. Now, about half the capital value of our farms is in the form of livestock, equipment, feed, and supplies. Obviously this does not provide a base for real estate mortgage credit. It must be financed by one of the many forms of short or intermediate loans such as those issued by banks, credit unions, finance companies, and merchandise accounts.

Thus in 1965 Canadian farmers had borrowed $804 millions through farm improvement or direct bank loans.[3] The other really big source of short-term or intermediate type credit is probably merchandise or sales credit. There was an additional trade credit exposure to farmers estimated for 1962 of over $500 millions direct from the head offices of firms dealing in farm equipment and supplies. There was probably an equivalent amount on loan by their dealers on their own responsibility. This would be in addition to householder or personal financing.

---

1 Agriculture runs over $30,000 per man on Ontario account keeping farms. Only extractive industries were nearly this high in 1935 according to Gordon Commission.

2 1931 Census of Agriculture, D.B.S.

3 Bank of Canada Annual Report, 1965.

Farm supply dealers find it is not good business to tie their sales too closely to credit, but they frequently make sales that involve extending credit. To avoid the complexities and problems of supervising a large number of credit accounts, they frequently turn their credit operation over to a finance company. Although trade credit may be the easiest to obtain, it is likely to be the most expensive, because the lenders must charge high rates of interest or compensate in some other way for the high risk and extra bookkeeping involved.

Since credit may cost farmers anywhere from 5 to 25 percent annually, including interest and other charges, it is desirable that the borrower understand the purposes for which different types of credit are designed, and the terms and conditions under which they may be employed.

Credit may provide a stepping stone to a more profitable operation. It may also be a millstone around the borrower's neck. Which it will be depends on how it is used and the terms and conditions under which it is borrowed. It is hoped that this publication will serve to make the possibilities for the wise use of credit much clearer.

TABLE 1

ESTIMATED FARM CREDIT OUTSTANDING CANADA 1961 and 1964

Source of Credit	Amount Outstanding 1961 1964 - millions of dollars -			Estimated Average Interest Rate	% Increase 61 - 64
Long Term (over 10 years)					
Federal government agencies	305.5	559.2		5.1	83%
Provincial '' ''	182.7	253.0		3.2	
Private individual	315.3	316.0		5.0	
Insurance, Mortgage and					
Trust Companies	20.0	80.0		7.8	
Industrial Development Bank		12.0		7.0	
Treasury Branches (Alberta)	1.0	0.9		5.8	
Sedco (Saskatchewan)		0.1		7.0	
Land Companies	1.8	1.0		6.0	
Total Long Term	826.3	1222.2	45%	4.9	48%
Intermediate term (18 mos. to 10 years)					
Supply company finance		250.0		9.0	
Banks (FILA)	193.8	273.1		5.0	40%
Credit Unions	15.0	122.4		9.0	
Private Individuals	50.0	82.0		5.0	
Provincial gov't agencies		1.0		4.1	
Treasury Branches		0.3		5.8	
Total Intermediate Term	258.8	728.8	29%	6.9	181%
Short Term (up to 18 months)					
Bank (non FILA)	290.7	433.0*		6.2	49%
Supply company finance	304.5	200.0		10.0	
Credit Unions	60.4	22.0		10.0	
Private individuals	3.0	2.0		5.0	
Treasury Branches	6.3	9.3		6.0	
Finance Companies, dealers,					
stores, etc.	53.8	23.0		15.0	
Total Short Term	718.7	689.3	26%	9.2	-18%
Total Estimated Credit	1803.8	2640.3		6.6	46%

*Source: Rust, R.S. "Farm Credit Expansion in Canada", Canadian Farm Economics, Vol. 1 No. 1,

Economic Analyst, Vol. XXXIII, No. 1

CREDIT PHILOSOPHY

R.F. Heard

Farm Management Specialist
Ontario Department of Agriculture and Food

1.   Credit Attitudes

"The borrower is the servant to the lender."

. . . . Proverbs, XXII, 7.

"Debt is a bottomless sea."

. . . . Carlyle.

"He that loses his credit is dead to the world."

. . . . 17th Century Writer,
George Herbert

These quotations illustrate the various and conflicting attitudes that men have dis-
played through generations toward the use of credit. This situation still persists today.
There are farmers who consider it a mark of disgrace to be in debt, and some perhaps
even feel it is morally wrong. Those who consider the use of credit as a stain on their
character certainly will not use credit except as a last resort. Then there are farmers
who view credit as a "tool" in the business of farming. They realize that "it takes money
to make money" and are prepared to pay the price of using credit. These men are aware
that credit is a two-edged implement, and that improperly used it may cut the user, but
they also reason that other things they use, such as fire, dynamite, and gasoline, are also
dangerous when improperly handled. The third area of attitudes is illustrated by those
who simply want to obtain credit without contemplating the consequences of its use. They
simply ask, "How can I get a loan?", rather than, "What can a loan do for me and what
are the risks and costs involved?"

2.   Proper Credit Use

Where a farmer has a decidedly queasy feeling about using credit, he will likely only
use it in emergencies or in exceedingly safe situations. Unless such a man has inherited
wealth, or otherwise has ample capital resources of his own, he will likely forgo many
opportunities to make profitable moves on his farm. Such an attitude toward credit puts a
lid on his potential to earn and produce. Also, farmers who tend to feel uncomfortable
while they still have a loan are likely to pay off a loan too quickly. Such actions, being
committed to an excessively fast repayment schedule, frequently lead to financial dif-
ficulties.

On the other hand, those who seek credit without having contemplated the risk in-
volved or the costs, frequently find themselves in beyond their depth, unable to carry the
debt load. What starts as a credit spree may end as a nightmare.

Proper credit use depends on people having credit attitudes between the extremes described above. Having this moderate attitude, the farmer must then learn about credit and money so that he is as familiar with the management of credit as he is with soil and crop production practices or dairy cow husbandry.

3.   Credit in Farm Management

High levels of farm income are based on the right combination of land, labor, capital, and management. When capital is in short supply relative to the other resources, the addition of more capital increases the economic efficiency of all the resources. The farm manager must evaluate the relative strengths of his resources and, if he concludes that capital is the resource which is in relatively the shortest supply, then he must consider adding capital to increase his efficiency. He must calculate what effect the addition of capital will have on his net income. The decision to borrow capital is one of the most important farm management decisions a farmer makes. In making the decision, the farmer needs to consider such questions as when to borrow, how much to borrow, for what to borrow, how long a repayment schedule to use, and what to use for security.

PRINCIPLES IN SOUND CREDIT USE

D.A. MacArthur
Farm Management Extension Specialist
Ontario Department of Agriculture and Food

1. <u>Use credit for productive purposes</u>

   Borrowed funds should be used primarily for purposes that will increase net income.

2. <u>Limit borrowing for unfamiliar enterprises</u>

   Test your ability to manage an enterprise before expanding it through the use of borrowed funds.

3. <u>Use only the credit needed to operate the farm efficiently</u>

   Use borrowed funds where they will bring the largest net income in the shortest time.

4. <u>Keep debts in line with net worth</u>

   This is the basis of financial strength and stability. Debts do not normally change with changes in value of assets.

5. <u>Keep debts in line with probable income</u>

   Cash income must be sufficient for farm operating expenses, replacing depreciable assets, family living expenses, and debt retirement.

6. <u>Tailor the loan to repayment capacity</u>

   The length of term should correspond to the length of time to recover the borrowed capital, with a margin for safety. The repayment schedule should fit the flow of income from the invested loan.

7. <u>Shop for a loan; select a dependable lender</u>

   Variations in loan terms are significant. Reputable lenders usually are more willing and able to make adjustments. Their costs and terms may be more reasonable.

8. <u>Be businesslike, fair, and frank with your lender</u>

   Pay promptly. Discuss problems early. Do not conceal pertinent facts.

9. <u>Study price trends</u>

   Estimate ability to repay principal plus interest on a realistic, conservative basis.

10. <u>Have adequate insurance for added risks</u>

   Using credit increases risk. There should be adequate property and liability insurance. Crop insurance is also available. Life insurance provides family protection.

TYPES AND SOURCES OF FARM CREDIT

A.C. Robertson
University of Guelph
Guelph, Ontario

In the early days of Ontario farm financing, the farmer who sold his farm to a stranger frequently took back an interest bearing mortgage. The livestock, machinery, and farm supplies were usually auctioned off for cash, or six- or nine-month approved joint notes. The local storekeeper and the local feed mill operator extended some credit and often took farm produce in payment for the debt. Implement agencies sold machinery to farmers and took notes in exchange. A few farmers used loans from private individuals, banks, mortgage companies, or finance agencies to finance their farming operations.

The above description embraces the various types of farm credit used today. These are:-

Long Term - real estate credit, usually 5 to 30 years.
Intermediate Term - farm improvement credit, usually 1 to 10 years.
Short Term - operational credit, usually 6 months to 2 years.

Increased land values, innovation, mechanization, changing technology, and the replacement of labor by capital have helped to raise farm investment. The modern economic farm unit with as much capital invested in livestock, equipment, and farm supplies as in real estate has provided a collateral base for credit extension.

A major source of farm mortgage credit is still private individuals. The important commercial sources of farm credit are chartered banks, mortgage companies, finance agencies, processors, and the various firms which supply farmers with feed, fertilizer, petroleum, equipment, and building materials.

In addition to the above, farmers also may qualify for government guaranteed loans for intermediate and operating capital. The terms and conditions of these, as well as for government sponsored mortgage loans, are outlined on the following pages.

GOVERNMENT - SPONSORED LOANS FOR ONTARIO FARMERS

TYPE OF LOAN	LONG TERM	LONG TERM	LONG TERM
TITLE	The Junior Farmer Establishment Act	Farm Credit Act 1959 (Canada)	Veterans' Land Act 1942 (Canada)
WHERE OBTAINED	Apply to your nearest Agricultural Representative	Farm Credit Corporation, 30 Eglinton Ave. E., Toronto, Ont. and local offices.	Regional Office, Veterans' Land Act, 480 University Ave., Toronto, Ont. Applications obtained from Field offices.
QUALIFICATIONS	(a) A Junior Farmer or the spouse of a Junior Farmer (b) a partnership of Junior Farmer partners (c) The owner of a family farm or a corporation operating a family farm. Age limit 21 to 35 years. Applicant must be a half-time farmer.	Actually engaged, or shortly to be engaged, in farming as his principal occupation. Experience and ability for successful farming. Part II — 21 to 66, a farmer. Part III — 21 to 66. Secondary income may be considered in reference to loans under Part II.	Veteran with ... loan. Experience and ability for successful farming necessary for full-time farming.
PURPOSE OF THE LOAN	To buy land, to erect buildings, to pay off encumbrances and other purposes relating to the establishment of the borrower.	Part II — not more than 75% of the appraised value of the farm offered as security. Part III — up to 75% value of farm, livestock & equipment maximum of $55,000. Accounting records to be maintained for management counselling.	Full or part-time farming. To buy land and buildings, building materials, provide machinery, livestock and implements, pay debts, and any other approved farm purpose.
AMOUNT OF THE LOAN	Not more than 80% of the appraised value. Maximum loan $50,000. Persons obtaining Junior Farmer Mortgage Loans are eligible for guaranteed bank loans. Up to $5,000 may be applied for by Junior Farmer or partnership, up to $15,000 may be applied for family farms or incorporated family farms.	Part II — not more than 75% of the appraised value. Part III — up to 75% value of farm, livestock & equipment maximum of $55,000.	Part I maximum $6,000 of which up to $1,200 may be used for livestock, which provides for a total maximum loan of $40,000 outstanding under Part I. Small Family farm loans are also available under Part II.
SECURITY FOR LOAN	First mortgage security is taken on the borrower's farm. Life insurance is required on loans above $20,000. Appraisal fee is $10.	A first mortgage on land and buildings required under Parts II and III. In addition, where loans are made, farm buildings. Leased farms are not acceptable as security. Part III may accept chattel mortgages as part security. Life insurance is required for Part III loan and also available in Part II loan.	Title vested in Director without sale by agreement to Veterans. Under Part I applicants submit a proposed plan of farm operations and the ability for successful farming. It is not necessary for the farm to be classified.
TERM OF LOAN	Farms are valued for their agricultural purposes only. Appraisals are conducted by representatives of the Corporation. Appraisal fee is $10.	Appraisal of land, improvements, stock. $10 applications fee required for Parts II and III. In addition, where loans are made appraisal costs are Part II — 2/3 of 1% of the amount of the loan; Part III — 1/2 of 1%, or $300 whichever is the lesser.	Appraisals and purchases are made by V.L.A. officials.
INTEREST ON LOAN	5% per annum.	Part II — 5% on 1st $20,000, 6 3/4% (at present) on balance; Part III — 5% on 1st $27,500, 6 3/4% (at present) on balance.	On loans under Part I of the Act, interest is 3 1/2%. On Part II up to $20,000, interest is 5% and on the balance 6 3/4% as at present.
OTHER CHARGES AND DEDUCTIONS	Legal fees are 1% of loan plus disbursements. When required by the Corporation, borrower must establish a payment of $6.25 per centum. A loan may be completely retired without notice or bonus at any time.	Applicant pays costs involved in research and perfection of title and registration of mortgage. Supervision fee $85 per year. Part III borrowers not eligible for F.I.L. unless F.I.L. approved.	No legal charges on initial purchases.
PAYMENT TERMS	Maximum term 30 years but borrower may choose shorter terms. Payments may be made in March, June, September or December. For example $1,000 completely. A loan may be completely retired without notice or bonus at any time.	Maximum of 29 years but may choose shorter terms. Loans payable half-yearly amortized over 30 years. Part III loans payable over 19 years.	Depends on type of loan required. Part I — on the $6,000 loan $3,600 for land and buildings and $3,200 for stock and equipment, 10% of the $4,600 required as down payment. Two-thirds of cost of land and buildings is repayable with interest over 30 years. Remainder of total loan is not repayable if veteran meets all terms of contract over 19 years. Part II net loan repayable over a 30 year term.

FARM MACHINERY SYNDICATE LOANS:

- 3 or more farmers per syndicate; the principal occupation of the majority of members of any syndicate must be farming.
- up to $15,000 loan per syndicate member; maximum $100 per syndicate.
- maximum 80% of actual price of machinery.
- maximum term 7 years, interest rate 6 1/4%.
- loan administered by ... and bank (the chartered banks include ...), Farm Credit Corporation.

GOVERNMENT - SPONSORED LOANS FOR ONTARIO FARMERS

TYPE OF LOAN	LONG TERM	LONG TERM	INTERMEDIATE TERM
TITLE	National Housing Act (N.H.A. loans)	Industrial Development loan	Farm Improvement Loans Act 1944 (Canada)
WHERE OBTAINED	See your local Central Mortgage & Housing Corporation Office for list of lenders.	Your local branch of any Canadian chartered bank.	Write to Branch offices at Ottawa, London, Hamilton, Kingston, London, Windsor, Sudbury or Port Arthur.
QUALIFICATIONS	Farm owners whose principal income is derived from farming. Available in all provinces except Saskatchewan.	Show that funds are employing two agricultural purposes. Intended to assist farmers where they do not expect to obtain satisfactory assistance in other contexts, but where ineligible for such financing, the farmer may apply to I.D.B.	A farm owner or tenant farmer. The principal occupation of the borrower must be farming.
PURPOSE OF THE LOAN	To assist in construction of a new farm house. Primarily for cost of construction, but not for working of existing encumbrances.	Any sound project.	To buy farm implements, construction; repairs; alterations or additions to farm houses and buildings; livestock, clearing and breaking farm acreage; fences, fencing and drainage systems, water irrigation systems and household appliances.
AMOUNT OF THE LOAN	Maximum loan for new construction is $18,000 plus 25 insurance fee for [...]	No fixed limits.	Maximum outstanding at any one time not more than $15,000. The amount as a percentage of cost varies, e.g. 90% for construction and repair of buildings, 75% for improvements.
SECURITY FOR LOAN	First mortgage or hypothec on land and buildings. Other existing encumbrances must be discharged to give a clear mortgage priority.	Appropriate security on the fixed assets of the farm business.	Any security acceptable to the bank consistent with the regulations of the Act. Machinery, other movables secured by way of Lien under Section 88 of Bank Act. Bank may require real estate mortgages dependent on amount and length of term of loan.
APPRAISED VALUE	Appraised value is appraised value of land plus appraised increased value derived from existing buildings and proposed house. Appraisal is usually carried out by the field appraisers employed by the Director of V.L.A. on behalf of the Central Mortgage and Housing Corporation. Requests must be directed to C.M.H.C.	The officers of the bank assess management and earnings prospects. The property is usually inspected for on the spot discussions of these problems, security advisability of a proposal.	Bank's appraisal of value of securities offered.
INTEREST ON LOAN	Maximum of 7% per annum, calculated semi-annually and not in advance.	Rate on new loan changes from time to time in keeping with the general level of interest rates in Canada. The interest rate is on a sliding scale - approximately 7 1/2% at present, calculated on the unpaid balance.	5% per annum, calculated on the unpaid balance.
OTHER CHARGES AND PENALTIES	Loans are insured by C.M.H.C. premium paid by home owners. If progress advances are needed during construction, fee is 3% of amount of loan. If loan is on completion of house, then fee is 1/4%. Fee is added to mortgage. Application fee is $35. Applicant pays legal expenses.	Legal costs are paid by the borrower.	
PAYMENT TERMS	Interest and principal in annual amounts or by arrangement when farmer receives income during the year. Term is generally 25 years but not more than 35 years. Example: Monthly payment of $5.01 per $1000 of loan will pay off interest and principal if term is 25 years.	Repayment of an I.D.B. loan is usually by monthly instalments of principal and interest. Length of re-payment period is arranged to suit circumstances.	

COSTS OF CREDIT

D.A. MacArthur

Farm Management Extension Specialist
Ontario Department of Agriculture and Food.

1. INTEREST

Three of the most common procedures for calculating interest are:

(a)   Interest on the unpaid balance (commonly called "simple" interest).

(b)   Interest on the original or face amount. ("instalment" or "add-on" type interest where interest is charged on the original amount of the loan throughout the repayment period.)

(c)   Interest paid in advance - a discounted loan.

2. OTHER CHARGES

In addition to interest charges, or in place of them, credit costs may include a variety of charges such as:

- carrying charges
- service charges
- investigation fees or appraisal charges
- legal fees including disbursement costs
- security payments
- bonus charges
- insurance premiums

3. RISK

The increased use of borrowed capital can increase risk because equity declines as indebtedness grows. However, the wise use of credit to develop a more economic farm unit, although temporarily reducing equity, can lead to a more profitable and secure farm business.

4. OPPORTUNITY COST

This is the cost of employing credit in other than its most profitable use. Using credit for one purpose may make it impossible to use credit for more profitable investments. If this happens the true cost of credit should include the additional earnings that would be realized if the borrowed funds had been invested in the more profitable activity. For example, if using credit for a purpose that yields 6 percent profit prohibits an alternative use for the same credit that would produce 9 percent profit, there is an opportunity cost of 3 percent in the form of foregone income.

CREDIT SITUATIONS, CASE EXAMPLES, CALCULATING INTEREST RATES

R. E. Bell
Farm Management Extension Specialist
Ontario Department of Agriculture and Food

As has just been pointed out, there are various costs associated with credit use. Some of the mistakes made in getting credit result from a lack of understanding of how to figure cost and make comparisons between different sources of credit. The only way to figure the real cost of borrowing is to express the charge in terms of simple, true or effective interest. It is fair to state that the borrower in many cases is more concerned with the number of dollars required on a monthly basis to retire the loan than the cost expressed as a percentage (interest). The method and ease of repayment is often as important to the buyer as the product itself. It would appear than an "easy" method of repayment is frequently emphasized as a main selling point in purchasing various items.

The existence of such situations illustrates the need for a clear understanding of the techniques required for accurate comparisons of credit costs. Only on this basis can rational decisions be made in respect to the cheapest source.

CALCULATING INTEREST RATES

The stated or quoted rate usually is not suitable for comparing interest cost because the actual rate will vary according to the method of charging interest. Simple arithmetic is all that is required to reduce interest rates and other financing costs to a common basis - the actual annual interest rate. This will allow you to compare directly the financing cost of different lenders. The following formula, which can be used for all short and intermediate term repayment plans requiring equal and evenly spaced payments, will give a systematic and reliable approach to the calculations.

$$\frac{\text{Total finance charges}}{1/2 \text{ original loan}} \times \frac{\text{Number of payments}}{\text{Number of years}} \times \frac{1}{(\text{Number of payments} + 1)} \times 100 = \text{Actual annual rate of interest}$$

Total finance charges - difference between cash purchase price and total amount of payments required to discharge loan.

Original loan - actual original amount of loan. For installment type loans this is the cash price less any down payment. For discounted loans it is the amount received after interest is deducted.

Number of payments - total number of payments required to discharge the loan.

Number of years - the repayment term expressed in years or fractions of years, e.g. for a 9-month loan the fraction would be 3/4 or .75; for an 18-month loan the fraction would be 1 1/2 or 1.5.

(The following examples will illustrate the use of this formula.)

The method of charging interest makes a difference in the cost of credit. There are many ways of figuring interest charges. Let us look at some of the more common methods.

1. <u>Interest and principal paid when loan becomes due</u>

This type of interest payment is the simplest and usually applies only to short-term loans, available for one year or less. An example of this would be a loan of $200 for one year at 6 percent. At the end of the year, the farmer pays back the $200 principal plus $12 interest. The actual or true interest rate is 6 percent, calculated as follows: $12 divided by $200 equals 6 percent. Use of the formula gives the same result:

$$\frac{12}{100} \ \text{X} \ \frac{1}{1} \ \text{X} \ \frac{1}{2} \ \text{X} \ 100 \ = \ 6\%$$

2. <u>Interest paid in advance</u>

This is called a discounted loan. The lender subtracts the interest at the time the loan is made and the borrower does not get the total amount of the loan. In the first example cited above, the borrower had use of $200 for a full year. However, in this case, the $12 interest charge would be deducted in advance and the borrower would get only $188. Since you would be paying $12 for the use of $188, the interest would be more than 6 percent. You can figure the true interest charge in this case by simply dividing $12 by $188, or by using the formula. The true annual interest rate would be:

$$\frac{12}{94} \ \text{X} \ \frac{1}{1} \ \text{X} \ \frac{1}{2} \ \text{X} \ 100 \ = \ 6.4\%$$

The true rate of interest on a discounted loan will increase as the discount period increases. If the $200 loan was discounted for two years, there would be only $176 available and you would pay $24 interest in advance. The actual interest rate in this case would be 6.8 percent.

3. <u>Loans for less than a year</u>

Another characteristic of discounted loans is shown in this example: if the loan were discounted for 6 months with a $12 interest charge, the annual rate of 6.4 percent would be doubled and the true rate would be 12.8 percent. If the discount period were only 4 months (1/3 of a year), the actual interest rate would be 19.2 percent.

4. <u>Installment loan with annual interest on original amount</u>

Under this method of figuring interest, you may pay a true interest rate as much as double the stated rate. Suppose the lender tells you that you can have $600 for 12 months at 6 percent interest. You agree to pay $50 on principal and $3 interest each month for

12 months. How much would this type of loan cost you in interest charges? Going back to the first example, you could figure that if you had the full $600 for 12 months and paid $36 interest at the end of the period, the true rate would be 6 percent. But in this example, you would be paying back $50 each month, so the original amount of $600 would not be available for the entire period. To determine the true rate of interest, you must figure the average amount of loan available to you during the period. You can make a quick estimate by adding the amount available in the first month ($600) to the amount available in the 12th month ($50) and divide the total by two. The result will be $325, the average amount available during the period. The next step is to divide the $36 interest charge by $325. This gives an annual interest rate of 11.1 percent. You can get the same answer from the formula:

$$\frac{36}{300} \ \text{X} \ \frac{12}{1} \ \text{X} \ \frac{1}{13} \ \text{X} \ 100 \ = \ 11.1\%$$

5. <u>Installment or amortized loan with annual interest figured on unpaid balance</u>

This method of charging interest, along with the one illustrated in example 1, will give a true rate of interest equal to the stated rate. These are good methods. Under this plan, the $600 loan would be repaid with a $50 payment on principal in 12 installments plus an interest payment on the unpaid or outstanding balance each month.

The total amount of interest in this case would be $19.50 ($3.00 for the first month plus 25¢ for the last month divided by 2 equals $1.63 times 12 months equals $19.50).

The formula gives the following results

$$\frac{19.50}{300} \ \text{X} \ \frac{12}{1} \ \text{X} \ \frac{1}{13} \ \text{X} \ 100 \ = \ 6\%$$

This example illustrates that the cost of ''6% interest on the unpaid balance'' is considerably less than ''6% interest on the original amount'' ($19.50 as compared to $36.00).

6. <u>Installment Buying</u>

(1) Dealers, retailers, and merchants offer credit in various forms. As an example, a dairyman asked a friend of mine about a proposal that he had received. It seems that he had been instructed to install a bulk tank if he wanted to keep his present milk market. He consulted his equipment dealer. The farmer was offered a satisfactory bulk tank at a cash price of $2,000. Since the farmer did not have this amount of money available, the dealer offered a so-called ''lease-purchase'' plan whereby the farmer would pay only $149 every 3 months for 5 years. At the end of 5 years the tank would be his and fully paid for.

Again, using the formula mentioned earlier, the calculations are as follows:

$$\frac{980}{1000} \ \text{X} \ \frac{20}{5} \ \text{X} \ \frac{1}{21} \ \text{X} \ 100 \ = \ 18.7\%$$

Most of this money could have been obtained under a Farm Improvement Loan at an effective interest rate of 5 percent, which would result in considerable savings to the farmer.

(2)   Chartered banks are now in the installment loan field. These loans are concerned with such items as cars, furnishings, household appliances. Take the situation where a man has a car valued at $400; he can get a loan from the bank for $2,500 on the purchase of a new car and can repay the loan over 36 months at $81.11 per month. Again, using the formula:

$$\frac{419.96}{1250} \quad X \quad \frac{36}{3} \quad X \quad \frac{1}{37} \quad X \quad 100 = 10.9\%$$

(3)   Carrying Charges

Another example of installment buying involves a case where a man may buy a new tractor for $3,500 with $1,000 allowance, or a difference of $2,500, plus a 10 percent carrying charge ($250) equalling $2,750. He may repay at $1,375 at the end of the sixth or twelfth months.

Effective interest in this case, again using the formula, is as follows:

$$\frac{250}{1250} \quad X \quad \frac{2}{1} \quad X \quad \frac{1}{3} \quad X \quad 100 = 13.3\%$$

7.   Further examples of Actual Interest Rates
       (short term credit of 1 year or less)

(1)   A drover supplies weaner pigs at $13 plus 50¢ each for financing. If weaners are fed for four months to market weight, then three groups may be fed per year. So if three batches are fed per year then the 50¢ charge is paid the equivalent of three times a year but all that has been borrowed is $13 for the full year. The interest amounts to $1.50 (3 x 50¢) on $13. Expressed as a rate, $\frac{1.50}{13} \quad X \quad 100 = 11.5\%$

Applying the formula:

$$\frac{1.50}{6.50} \quad X \quad \frac{1}{1} \quad X \quad \frac{1}{2} \quad X \quad 100 = 11.5\%$$

(2)   Farm gas bills may be paid annually, even though gas is purchased several times throughout the year. Carrying charges may be 1% per month compounded. The average bill is not carried for a full year. Calculated on an annual basis and stated in terms of simple interest, the rate of interest may be calculated as follows:

Add up invoice amounts and subtract from the final billing to find the carrying charges. Calculate the number of months carried not including the first 30 days. A $400 invoice had a final billing of $437.47. Carrying charges amounted to $437.47 for the nine months. The interest rate, expressed in simple interest terms then, according to the formula is:

$$\frac{37.47}{200} \quad X \quad \frac{1}{.75} \quad X \quad \frac{1}{2} \quad X \quad 100 = 12.5\%$$

(3)   A feeder may pay for the feed when the hogs go to market. The charge is usually stated as, so many dollars per ton. For example, the hog feed is worth $75 per ton and the charge is $2 per ton. The hogs are fed for four months, but they eat a great deal more per head in the last month than in the first month, e.g. 3 to 4 lbs per day versus 6 to 8 lbs per day. If they eat twice as much in the last half as in the first half of the four months, then feed is being supplied on the average 1 1/2 months. Based on an annual borrowing, then the charges amount to $2 per ton x $\frac{12 \text{ months}}{1 \text{ } 1/2}$ or $16 per year on $75.

The rate of interest is approximately $\frac{\$16 \text{ x } 100}{\$75}$ 21.3%

Applying the formula:

$$\frac{2}{37.50} \text{ X } \frac{1}{1/8} \text{ X } \frac{1}{2} \text{ X } 100 \quad 21.3\%$$

(1/8 represents the fraction of a year and is arrived at by dividing 12 months into 1 1/2 months.)

INTEREST RATES AND LONG-TERM LOANS

The effect of different interest rates is significant, especially in large, long-term loans. The following schedule shows the total interest payments for a $20,000 loan amortized on an annual basis for 20 years at different interest rates. It illustrates the value of shopping for credit.

INTEREST RATE	TOTAL INTEREST PAID
4 %	$ 9,440
$4\frac{1}{2}$ %	10,760
5 %	12,080
$5\frac{1}{2}$ %	13,480
6 %	14,880
$6\frac{1}{2}$ %	16,320
7 %	17,760
$7\frac{1}{2}$ %	19,240
8 %	20,760

AMORTIZED VERSUS NON-AMORTIZED LOANS

On an amortized loan, the borrower's total interest payments are higher than if he paid a fixed amount of principal each year and interest on the unpaid balance. However, under the amortized plan, the borrower's annual payments of principal and interest will be smaller in the early years when he usually needs the money the most in the business. The following example shows the difference in the two methods for a $20,000 loan at 5 percent with a 20-year repayment schedule. Schedule A has annual principal payments of $1,000 plus interest on the unpaid balance. Schedule B is the amortized plan.

	SCHEDULE A (Fixed principal payments plus interest)				SCHEDULE B (Amortized)		
Principal	Interest	Total	Payment No		Principal	Interest	Total
$1,000	$1,000	$2,000	1		$605	$1,000	$1,605
1,000	950	1,950	2		635	970	1,605
1,000	900	1,900	3		667	938	1,605
1,000	850	1,850	4		700	905	1,605
1,000	800	1,800	5		735	870	1,605
1,000	750	1,750	6		772	833	1,605
1,000	700	1,700	7		811	794	1,605
1,000	650	1,650	8		851	754	1,605
1,000	600	1,600	9		894	711	1,605
1,000	550	1,550	10		938	667	1,605
1,000	500	1,500	11		985	620	1,605
1,000	450	1,450	12		1,035	570	1,605
1,000	400	1,400	13		1,086	519	1,605
1,000	350	1,350	14		1,141	464	1,605
1,000	300	1,300	15		1,198	407	1,605
1,000	250	1,250	16		1,258	347	1,605
1,000	200	1,200	17		1,321	284	1,605
1,000	150	1,150	18		1,387	218	1,605
1,000	100	1,100	19		1,456	149	1,605
1,000	50	1,050	20		1,525	76	1,605
$20,000	$10,500	$30,500	TOTAL		$20,000	$12,096	$32,096

SUMMARY TABLE

TYPE OF LOAN	MONEY TO USE	PERIOD	AMOUNT REPAID	COST	QUOTED RATE	ACTUAL ANNUAL RATE
1. Interest & Principal paid when loan became due	$200.00	1 year	$212.00	$12.00	6%	6%
	$176.00	2 years	$200.00	$24.00	6%	6.8%
2. Interest paid in advance:	$188.00	1 year	$200.00	$12.00	6%	6.4%
3. Loans for less than a year: Interest in advance:	$188.00	6 months	$200.00	$12.00	6%	12.8%
4. Installment loan with annual interest on original amount:	$600.00	1 year	$636.00	$36.00	6%	11.1%
5. Installment or Amortized loan with annual interest on unpaid balance:	$600.00	1 year	$619.50	$19.50	6%	6%
6. Installment Buying:						
Dealer	$2,000.00	5 years	$2,980.00	$980.00	--	18.6%
Bank	$2,500.00	3 years	$2,919.96	$419.96	--	10.8%
Dealer	$2,500.00	1 year	$2,750.00	$250.00	--	13.3%

DISCUSSION QUESTIONS

1. Mr. Jenkins has decided to build a hog barn which he estimates will cost $5,000.

   a) What sources of credit should he consider?_____

   b) It will also be necessary for him to obtain credit to purchase the 200 weaners. Where would you suggest that he go for this loan?_____

   c) Since he will be purchasing most of his feed, he will require additional credit to finance his feed purchases. What source and form of credit would you suggest he consider for this purpose?_____

2. Mr. James decides to purchase a better car than his present one valued at $300. He can get a loan from the bank for $2,800 which is to be repaid over 36 months at $90.61 per month. Is this a good deal?_____

   What interest rate is he paying?_____

3. Mrs. Williams purchases a TV set on the installment plan by making a down payment of $5 and agrees to pay the balance in 24 monthly payments of $10 each. The cash price of the TV set was $195.

   What interest rate is she paying?_____

4. Mr. Hill borrows $600 at a stated discount rate of 6 percent. He receives $510 in cash and repays the loan in 30 monthly installments of $20 each. What is the true annual interest rate on this loan?_____